What Is Claimed Is:

1. Apparatus for automated semiconductor device probing, said apparatus comprising:

a probe assembly including an electrical probe for making an electrical connection with a semiconductor device, said probe assembly having a first surface and a second surface in opposition to one another;

a machine vision system having a camera for locating said semiconductor device, said machine vision system having a first contact surface adjacent said first surface of said probe assembly, said first contact surface having a first attachment mechanism to selectively attach together said probe assembly and said machine vision system; and

a semiconductor support fixture for positioning said semiconductor device, said semiconductor support fixture having a second contact surface adjacent said second surface of said probe assembly, said second contact surface having a second attachment mechanism to selectively attach together said probe assembly and said semiconductor support fixture.

2. Apparatus according to claim 1 further comprising at least one of said probe assembly and said semiconductor

support fixture being selectively movable in a plane substantially orthogonal to a line extending between said probe assembly and said semiconductor support fixture.

3. Apparatus according to claim 2 further comprising at least one of said probe assembly and said semiconductor support fixture being selectively movable toward the other of said at least one of said probe assembly and said semiconductor support fixture along a line extending between said probe assembly and said semiconductor support fixture.

4. Apparatus according to claim 3 wherein said machine vision system locates said semiconductor device positioned on said semiconductor support fixture, and said machine vision system guides the movement of at least one of said probe assembly and said semiconductor support fixture so as to position a contact portion of said semiconductor device and said electrical probe in alignment with one another, and wherein at least one of said probe assembly and said semiconductor support fixture is moved toward the other of said at least one of said probe assembly and said semiconductor support fixture so as to position said electrical probe and said contact portion of said

semiconductor device in electrical connection with one another.

5. Apparatus according to claim 1 wherein said probe assembly comprises two electrical probes.

6. Apparatus according to claim 1 wherein said first attachment mechanism is an electromagnet.

7. Apparatus according to claim 1 wherein said first attachment mechanism is an electromagnet.

8. Apparatus according to claim 1 wherein said first attachment mechanism provides a fail safe mechanism to selectively attach together said probe assembly and said machine vision system so as to prevent said probe assembly from falling during a loss of power.

9. Apparatus according to claim 1 wherein said probe assembly and said machine vision system further comprises an alignment mechanism to align one another during engagement with one another.

10. Apparatus according to claim 1 further comprising a motion stage wherein said semiconductor support fixture is mounted on said motion stage.

11. Apparatus according to claim 9 wherein said motion stage moves in a plane orthogonal to the view of said camera of said machine vision system.

12. Apparatus according to claim 1 wherein said semiconductor support fixture is selectively movable in a plane substantially orthogonal to a line extending between said probe assembly and said semiconductor support fixture.

13. Apparatus according to claim 1 wherein said probe assembly is selectively movable in a plane substantially orthogonal to a line extending between said probe assembly and said semiconductor support fixture.

14. Apparatus according to claim 1 wherein said semiconductor support fixture and said probe assembly are each selectively movable in first and second planes substantially orthogonal to a line extending between said

probe assembly and said semiconductor support fixture, respectively.

15. Apparatus according to claim 1 wherein said semiconductor support fixture is selectively movable toward said probe assembly.

16. Apparatus according to claim 10 wherein said probe assembly is selectively movable toward said semiconductor support fixture.

17. Apparatus according to claim 1 wherein said probe assembly and said semiconductor support fixture are each selectively movable toward each other.

18. Apparatus according to claim 10 wherein said machine vision system locates said semiconductor device to guide the movement of said motion stage so as to position said contact portion of said semiconductor device and said electrical probe in alignment with one another.

19. Apparatus according to claim 10 wherein said motion stage moves said semiconductor support fixture toward

said probe assembly so as to position said electrical probe and said contact portion of said semiconductor device in electrical connection with one another.

20. Apparatus according to claim 1 wherein said second surface of said probe assembly contacts said second attachment mechanism of said semiconductor support fixture as said electrical probe and said contact portion of said semiconductor device are in electrical connection with one another.

21. Apparatus according to claim 1 wherein said first attachment mechanism attaches together said probe assembly and said machine vision system as said contact portion of said semiconductor device and said electrical probe are being positioned in alignment with one another.

22. Apparatus according to claim 21 wherein said second attachment mechanism attaches together said probe assembly and said semiconductor support fixture after said electrical probe and said semiconductor device are in electrical connection with one another.

23. Apparatus according to claim 22 wherein said first attachment mechanism releases said probe assembly from said machine vision system after said second attachment means attaches together said probe assembly and said semiconductor support fixture.

24. Apparatus according to claim 23 wherein said probe assembly and said semiconductor support fixture are moved as a single unit away from said machine vision system.

25. Apparatus according to claim 24 wherein an electrical signal is applied by said electrical probe to said contact portion of said semiconductor device.

26. Apparatus according to claim 24 wherein said electrical probe reads an electrical signal back from said contact portion of said semiconductor device.

27. Apparatus according to claim 24 wherein said semiconductor device is assembled with said electrical probe, in electrical contact with one another.

28. Apparatus according to claim 24 wherein said probe assembly and said semiconductor support fixture are moved as said single unit back to said machine vision system.

29. Apparatus according to claim 28 wherein said first attachment mechanism reattaches together said probe assembly and said machine vision system after said single unit is moved back to said machine vision system.

30. Apparatus according to claim 29 wherein said second attachment means releases said probe assembly from said semiconductor support fixture after said first attachment mechanism reattaches together said probe assembly and said machine vision system.

31. Apparatus according to claim 30 wherein said semiconductor support fixture is moved away from said probe assembly after said second attachment means releases said probe assembly from said semiconductor support fixture.

32. Apparatus according to claim 1 wherein an electrical signal is applied by said electrical probe to said contact portion of said semiconductor device.

33. Apparatus according to claim 1 wherein said electrical probe reads an electrical signal back from said contact portion of said semiconductor device.

34. Apparatus according to claim 1 wherein said semiconductor device is assembled with said electrical probe, in electrical contact with one another.

35. A method for automated semiconductor device probing, said method comprising:

providing apparatus for automated semiconductor device probing, said apparatus comprising:

a probe assembly including an electrical probe for making an electrical connection with a semiconductor device, said probe assembly having a first surface and a second surface in opposition to one another;

a machine vision system having a camera for locating said semiconductor device, said machine vision system having a first contact surface adjacent said first surface of said probe assembly, said first contact surface having a first attachment mechanism to selectively attach

together said probe assembly and said machine vision system; and

a semiconductor support fixture for positioning said semiconductor device, said semiconductor support fixture having a second contact surface adjacent said second surface of said probe assembly, said second contact surface having a second attachment mechanism to selectively attach together said probe assembly and said semiconductor support fixture;

locating said semiconductor device positioned on said semiconductor support fixture with said machine vision system;

guiding the movement of at least one of said probe assembly and said semiconductor support fixture so as to position a contact portion of said semiconductor device and said electrical probe in alignment with one another; and

moving at least one of said probe assembly and said semiconductor support fixture toward the other of said at least one of said probe assembly and said semiconductor support fixture so as to position said electrical probe and said contact portion of said semiconductor device in electrical connection with one another.

36. A method according to claim 35 wherein said apparatus further comprises at least one of said probe assembly and said semiconductor support fixture being selectively movable in a plane substantially orthogonal to a line extending between said probe assembly and said semiconductor support fixture; and

37. A method according to claim 36 wherein said apparatus further comprises at least one of said probe assembly and said semiconductor support fixture being selectively movable toward the other of said at least one of said probe assembly and said semiconductor support fixture along a line extending between said probe assembly and said semiconductor support fixture.

38. A method according to claim 35 further comprising the step of attaching together said probe assembly and said machine vision system at said first attachment mechanism prior to the step of guiding the movement of at least one of said probe assembly and said semiconductor support fixture to position said contact portion of said semiconductor device in alignment with said electrical probe.

39. A method according to claim 38 further comprising the step of attaching together said probe assembly and said semiconductor support fixture at said second attachment mechanism after the step of moving at least one of said probe assembly and said semiconductor support fixture toward the other of said at least one of said probe assembly and said semiconductor support fixture to position said electrical probe and said contact portion of said semiconductor device in electrical connection with one another.

40. A method according to claim 39 further comprising the step of releasing said probe assembly from said machine vision system at said first attachment mechanism after the step of attaching together said probe assembly and said semiconductor support fixture at said second attachment mechanism.

41. A method according to claim 40 further comprising the step of moving said probe assembly and said semiconductor support fixture as a single unit away from said machine vision system after the step of releasing said

probe assembly from said machine vision system at said first attachment mechanism.

42. A method according to claim 41 further comprising the step of applying an electrical signal by said electrical probe to said contact portion of said semiconductor device.

43. A method according to claim 41 further comprising the step of reading back an electrical signal from said contact portion of said semiconductor device by said electrical probe.

44. A method according to claim 41 further comprising assembling said semiconductor device with said electrical probe, in electrical contact with one another.

45. A method according to claim 41 further comprising the step of moving said probe assembly and said semiconductor support fixture attached together as said single unit back to said machine vision system.

46. A method according to claim 45 further comprising the step of reattaching together said probe assembly and said machine vision system after the step of moving said probe assembly and said semiconductor support fixture attached together as said single unit back to said machine vision system.

47. A method according to claim 46 further comprising the step of releasing said probe assembly from said semiconductor support fixture after the step of reattaching together said probe assembly and said machine vision system.

48. A method according to claim 47 further comprising the step of moving away said semiconductor support fixture from said probe assembly after the step of detaching apart said probe assembly and said semiconductor support fixture.

49. A method according to claim 48 further comprising the step of removing said semiconductor device from said semiconductor support fixture and placing another semiconductor device on said semiconductor support fixture.

50. A method according to claim 35 further comprising the step of moving said semiconductor support fixture to probe another semiconductor device contained on said semiconductor support fixture.